



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/647,894 | 10/06/2000 | John J. Egan | BKS 308 P2 | 6069 |

33805 7590 12/19/2002

WEGMAN, HESSLER & VANDERBURG
6055 ROCKSIDE WOODS BOULEVARD
SUITE 200
CLEVELAND, OH 44131

[REDACTED] EXAMINER

MULLINS, BURTON S

[REDACTED] ART UNIT

[REDACTED] PAPER NUMBER

2834

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/647,894 | EGAN ET AL. |
| | Examiner | Art Unit |
| | Burton S. Mullins | 2834 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) **Responsive to communication(s) filed on 13 November 2002.**

2a) **This action is FINAL.** 2b) **This action is non-final.**

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) **Claim(s) 4,5,7,13,14,16,20,28-32 and 34-55 is/are pending in the application.**

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) **Claim(s) 16,20 and 34-55 is/are allowed.**

6) **Claim(s) 4,5,7,13,14 and 28-32 is/are rejected.**

7) **Claim(s) _____ is/are objected to.**

8) **Claim(s) _____ are subject to restriction and/or election requirement.**

Application Papers

9) **The specification is objected to by the Examiner.**

10) **The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.**
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) **The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.**
 If approved, corrected drawings are required in reply to this Office action.

12) **The oath or declaration is objected to by the Examiner.**

Priority under 35 U.S.C. §§ 119 and 120

13) **Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).**
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) **Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).**
 a) The translation of the foreign language provisional application has been received.

15) **Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.**

Attachment(s)

| | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 50 is objected to because of the following informalities: Change “comoprising” to –comprising--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 3,276,701) in view of Ueyama (US 5,530,306). Fisher teaches an “attrition mill” or rotary, paper pulp refiner comprising: a motor 28 (Fig. 1) with a stationary member (not shown, inherent in electric motors) and a rotatable drive member or shaft 26/45; a rotatable pulp processing component 40 carried by the rotor 26/45; and bearings 92/122 (Figs.3&4) supporting the rotatable drive member and the rotatable pulp processing component.

Fisher differs in that the bearings 91/122 are not magnetic bearings, i.e., they do not control axial and radial movement of the rotor relative to the stator.

Magnetic bearings, however, are well known in the art for supporting rotating motor rotors. Ueyama teaches magnetic bearings including an axial bearing (not shown) and radial bearings 2/3 (Fig.1; c.3, lines 24-47) for supporting a rotating member 1 such as the rotor of a spindle of a machine tool (c.1, lines 16-26).

It would have been obvious to one of ordinary skill to modify Fisher and provide axial and radial magnetic bearings per Ueyama since these would have been desirable to maintain the shaft of a machine tool in position.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher and Ueyama as applied to claim 4 above, further in view of Lucas (US 5,887,808). Fisher and Ueyama do not teach a variable speed motor, per se.

Lucas teaches a grinding apparatus 200 (Fig. 10) including "a v-belt drive unit 208 coupled to a variable speed motor 206 such that the rotational speed of the beaters/hammers 24 can be varied to accommodate a wide variety of products and product mixes" (c.8, lines 36-39).

It would have been obvious to employ a variable speed motor per Lucas in the invention of Fisher and Ueyama since a variable speed motor drive would have been desirable to vary the rotational speed of the processor to accommodate different products and product mixes.

5. Claims 7, 13-14, 28-29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher in view of Ueyama and Lucas. Fisher differs in that the bearings 91/122 are not magnetic bearings, i.e., they do not control axial and radial movement of the rotor relative to the stator. Neither does Fisher teach a variable speed motor, per se.

Regarding the former feature, Ueyama teaches magnetic bearings including axial bearings (not shown) and radial bearings 2/3 (Fig. 1; c.3, lines 24-47) for supporting a rotating member 1 such as the rotor of a spindle of a machine tool (c.1, lines 16-26).

Regarding the latter feature Lucas teaches a grinding apparatus 200 (Fig.10) including "a v-belt drive unit 208 coupled to a variable speed motor 206 such that the rotational speed of the beaters/hammers 24 can be varied to accommodate a wide variety of products and product mixes" (c.8, lines 36-39).

It would have been obvious to one of ordinary skill to modify Fisher and provide axial and radial magnetic bearings per Ueyama since these would have been desirable to maintain the shaft in position, and further to employ a variable speed motor per Lucas in the invention of Fisher and Ueyama since a variable speed motor drive would have been desirable to vary the rotational speed of the processor to accommodate different products and product mixes.

Regarding claims 13 and 28, in Fisher the rotor 26/45 is integral with the pulp processor 40 in the sense that the two pieces are connected together. Further, it has been held that integration of separate parts involves ordinary skill. *In re Larson* 144 USPQ 347 (CCPA 1965).

Regarding claim 31, note that Lucas teaches that the variable speed motor may be directly coupled (c.8, line 44), i.e., the pulp processing component and the motor rotor shaft are "combin[ed]...along a common shaft."

6. Claims 4-5, 7, 13-14 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher in view of Ueyama and Giardini (US 3,932,069). Fisher generally teaches applicant's invention including first and second refiner plates 47 & 48 (Fig.2) but differs in that the bearings 91/122 are not magnetic bearings, i.e., they do not control axial and radial movement of the rotor relative to the stator. Neither does Fisher teach a variable speed motor such as a switched reluctance motor, per se.

Regarding the former feature, Ueyama teaches magnetic bearings including axial bearings (not shown) and radial bearings 2/3 (Fig. 1; c.3, lines 24-47) for supporting a rotating member 1 such as the rotor of a spindle of a machine tool (c.1, lines 16-26).

Regarding the latter feature, Giardini teaches a variable speed motor comprising a switched variable reluctance motor used to drive a rotatable member of a submersible processing apparatus (a pump) in a closed chamber. The motor uses well-known synchronized, pulsed (switched) excitation (c.1, lines 48-63; c.2, lines 22-26). Variable reluctance motors provide an extremely simple structure for producing pumping action (abstract; c.4, lines 30-31).

It would have been obvious to one of ordinary skill to modify Fisher and provide axial and radial magnetic bearings per Ueyama since these would have been desirable to maintain the shaft in position, and further to employ a variable speed, switched reluctance motor per Giardini to drive the apparatus of Fisher and Ueyama since these motors would be desirable for their simple structure for producing pumping action.

Regarding claim 20, note Fisher Figs.12-13 showing third and fourth refiner plates mounted on end plates of the housing.

Allowable Subject Matter

7. Claims 16 and 20 are allowed. Applicant incorporates indicated allowable subject matter of a linear movement actuator.
8. Claims 34-49 are allowed.

9. Claims 50-55 are allowed, pending correction of the objection to claim 50 noted above. The prior art does not teach a paper pulp apparatus including, *inter alia*, a rotatable drive member having conical ends. Neither Fisher nor Ueyama teach conical ends on their rotors. Of the remaining prior art, Bramm teaches an impellor blood pump including a magnetically-suspended rotor (impellor) 42 having two conical end portions 62 and 64 (Fig.1; c.8, lines 12-18) which enable laminar flow of the blood. However, the conical shape in Bramm is not the same as the conical shape of the ends shown in applicant's Figs.1,3&5. Further, it is not clear how one of ordinary skill would incorporate the conical ends into Fisher and Ueyama since in Fisher, the right hand end 222 of main shaft 211 couples with a motor drive (c.8, lines 9-11). It is also not clear that the magnetic bearings would be arranged to support the conical ends, specifically, *i.e.*, that the magnetic bearings would be located in the region of rotor's conical ends.

Response to Arguments

10. Applicant's arguments filed November 13, 2002 have been fully considered but they are not wholly persuasive. Regarding the rejection of claim 4 over Fisher and Ueyama, applicant argues that Ueyama's portion 4/5 do not "control axial and radial movement directly" as claimed, but rather are used to calculate the center of mass change to the rotor. The examiner concedes that elements 4/5 are part of the radial magnetic bearings; however, applicant ignores the teaching in Ueyama of a magnetic bearing apparatus "compris[ing] one axial magnetic bearing (not shown) and two left and right radial magnetic bearings 2 and 3 for supporting a rotating member 1...The axial magnetic bearing supports the rotating member 1 in

Art Unit: 2834

the Z-axis direction...The radial magnetic bearings 2 and 3 support the rotating member 1 in the radial direction." (c.3, lines 25-32; Fig.1). Thus, Ueyama teaches a magnetic bearing that supports axial and radial movement of the rotatable member.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

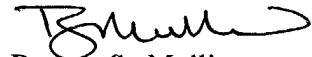
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone number for the organization where this application or proceeding is assigned is 305-1341.

Application/Control Number: 09/647,894

Art Unit: 2834

Page 8

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm

December 18, 2002